Table of Contents

Side-Channel Attacks

On the Simplicity of Converting Leakages from Multivariate to Univariate: Case Study of a Glitch-Resistant Masking Scheme	1
Success through Confidence: Evaluating the Effectiveness of a Side-Channel Attack	21
Profiling DPA: Efficacy and Efficiency Trade-Offs	37
Non-invasive Spoofing Attacks for Anti-lock Braking Systems Yasser Shoukry, Paul Martin, Paulo Tabuada, and Mani Srivastava	55
Physical Unclonable Function	
An Accurate Probabilistic Reliability Model for Silicon PUFs	73
A High Reliability PUF Using Hot Carrier Injection Based Response Reinforcement	90
On the Effectiveness of the Remanence Decay Side-Channel to Clone Memory-Based PUFs	107
Lightweight Cryptography	
Pushing the Limits of SHA-3 Hardware Implementations to Fit on RFID	126
FIDES: Lightweight Authenticated Cipher with Side-Channel Resistance for Constrained Hardware	142

Hardware	Imp	lementations	and	Fault	Attacks
----------	-----	--------------	-----	-------	---------

On Measurable Side-Channel Leaks Inside ASIC Design Primitives Takeshi Sugawara, Daisuke Suzuki, Minoru Saeki, Mitsuru Shiozaki, and Takeshi Fujino	159
A Very High Speed True Random Number Generator with Entropy	
Assessment	179
Stealthy Dopant-Level Hardware Trojans	197
A Differential Fault Attack on MICKEY 2.0	215
Efficient and Secure Implementations	
Improving Modular Inversion in RNS Using the Plus-Minus Method Karim Bigou and Arnaud Tisserand	233
McBits: Fast Constant-Time Code-Based Cryptography Daniel J. Bernstein, Tung Chou, and Peter Schwabe	250
Smaller Keys for Code-Based Cryptography: QC-MDPC McEliece Implementations on Embedded Devices	273
Sleuth: Automated Verification of Software Power Analysis Countermeasures	293
Elliptic Curve Cryptography	
Lambda Coordinates for Binary Elliptic Curves	311
High-Performance Scalar Multiplication Using 8-Dimensional GLV/GLS Decomposition	331
Joppe W. Bos, Craig Costello, Huseyin Hisil, and Kristin Lauter	
On the Implementation of Unified Arithmetic on Binary Huff Curves Santosh Ghosh, Amit Kumar, Amitabh Das, and Ingrid Verbauwhede	349

Table of Contents	XIII
Inverting the Final Exponentiation of Tate Pairings on Ordinary Elliptic Curves Using Faults	365
Masking	
Block Ciphers That Are Easier to Mask: How Far Can We Go?	383
Masking vs. Multiparty Computation: How Large Is the Gap	400
for AES?	400
Analysis and Improvement of the Generic Higher-Order Masking Scheme of FSE 2012	417
Side-Channel Attacks and Countermeasures	
Using Bleichenbacher's Solution to the Hidden Number Problem to Attack Nonce Leaks in 384-Bit ECDSA	435
A New Model for Error-Tolerant Side-Channel Cube Attacks Zhenqi Li, Bin Zhang, Junfeng Fan, and Ingrid Verbauwhede	453
Leakage-Resilient Symmetric Encryption via Re-keying	471
Author Index	489